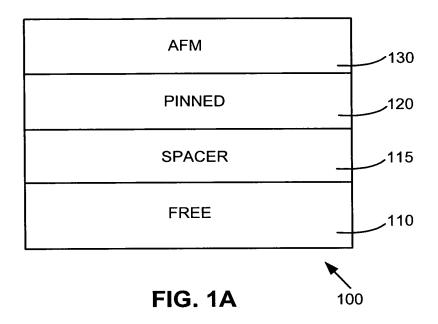
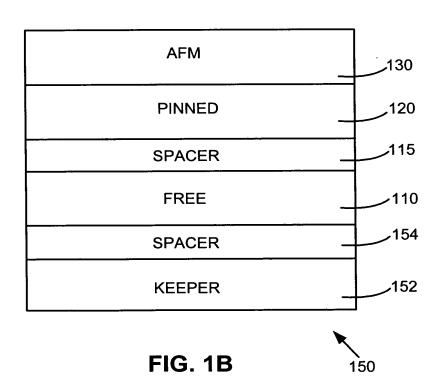
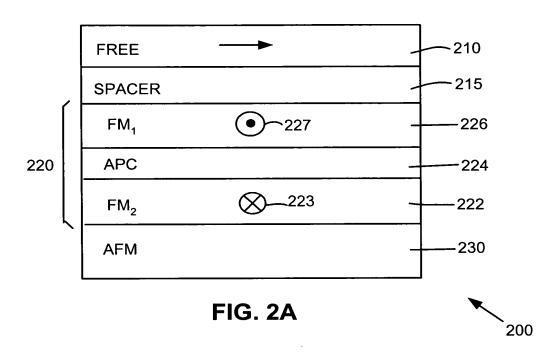
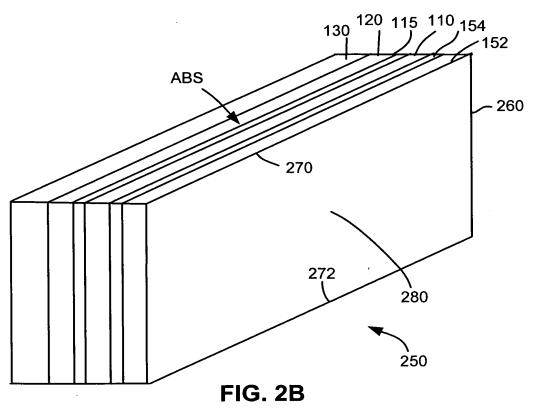
1/9 Hardayal S. GILL HIT1P049/HSJ9-2003-0205US1 (RF)





2/9 Hardayal S. GILL HIT1P049/HSJ9-2003-0205US1 (RF)





3/9 Hardayal S. GILL HIT1P049/HSJ9-2003-0205US1 (RF)

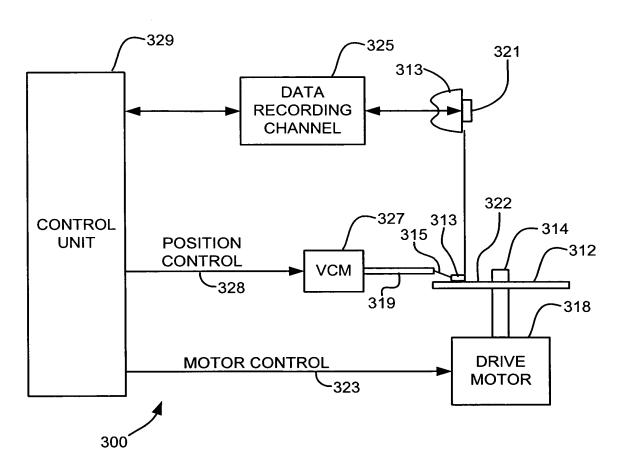


FIG. 3

4/9 Hardayal S. GILL HIT1P049/HSJ9-2003-0205US1 (RF)

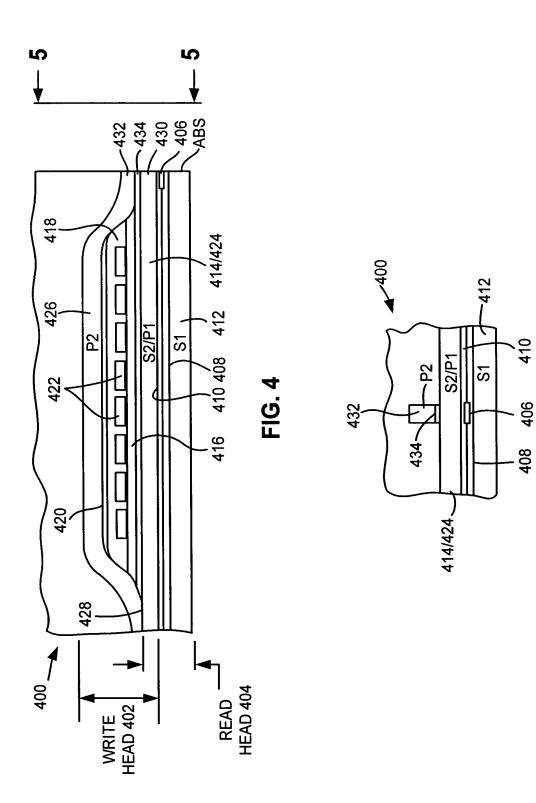
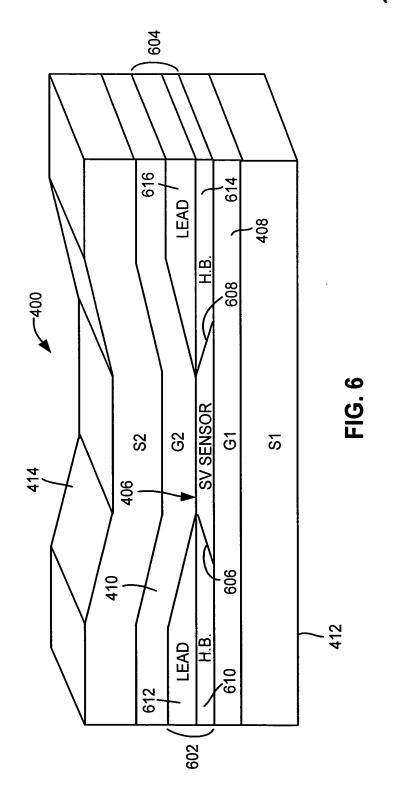
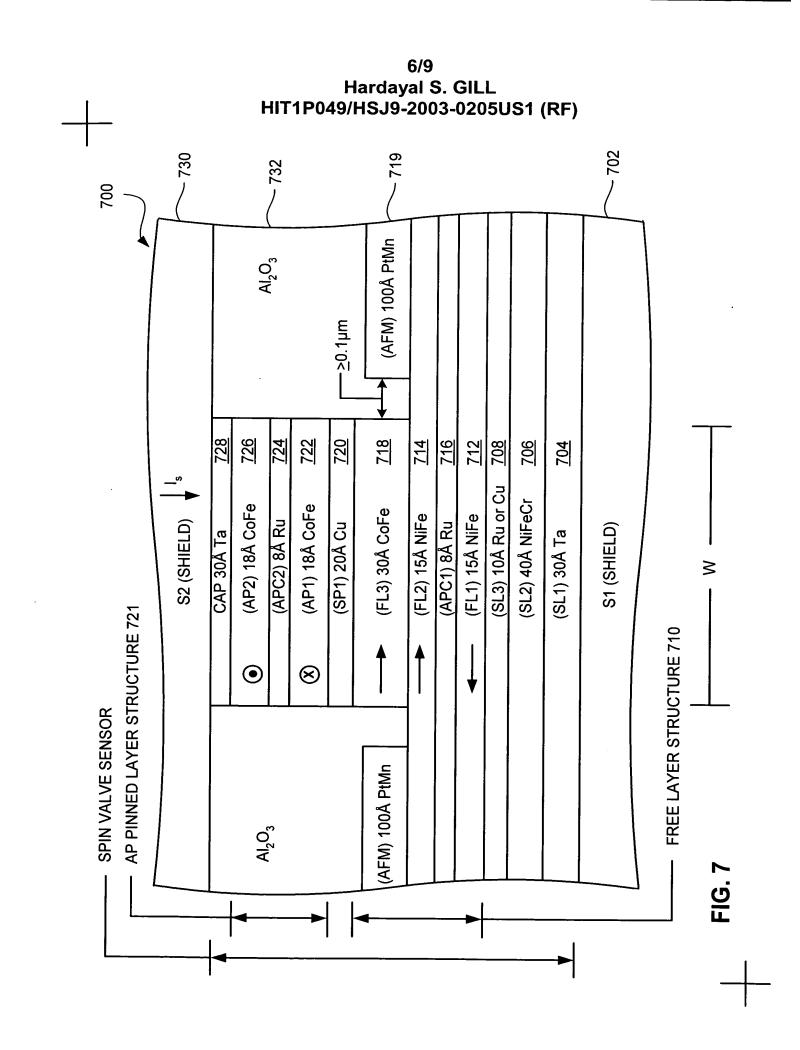


FIG. 5

5/9 Hardayal S. GILL HIT1P049/HSJ9-2003-0205US1 (RF)





7/9 Hardayal S. GILL HIT1P049/HSJ9-2003-0205US1 (RF) ~ 702 730 719 732 800 Al_2O_3 726 716 722 720 718 714 712 708 <u> 706</u> 704 (SL3) 10Å Ru or Cu (SL2) 40Å NiFeCr (AP2) 18Å CoFe (AP1) 18Å CoFe (FL3) 30Å CoFe (FL1) 15Å NiFe (FL2) 15Å NiFe S2 (SHIELD) (APC2) 8Å Ru (SP1) 30Å Cu (APC1) 8Å Ru S1 (SHIELD) CAP 30A Ta (SL1) 30Å Ta ≥ AP PINNED LAYER STRUCTURE 721 FREE LAYER STRUCTURE 710 • \otimes SPIN VALVE SENSOR AI_2O_3 FIG. 8

8/9 Hardayal S. GILL HIT1P049/HSJ9-2003-0205US1 (RF) - 702 - 719 730 732 900 (AFM) 100Å PtMn -≥0.1µm Al_2O_3 <u>726</u> 718 722 716 720 714 708 712 907 704 (SL3) 10Å Ru or Cu (SL2) 40Å NiFeCr (AP2) 18Å CoFe (AP1) 18Å CoFe (FL3) 30Å CoFe (FL2) 15Å NiFe (FL1) 15Å NiFe (APC2) 8Å Ru (APC1) 8Å Ru (SP1) 20Å Cu S1 (SHIELD) CAP 30Å Ta (SL1) 30Å Ta ≥ AP PINNED LAYER STRUCTURE 721 FREE LAYER STRUCTURE 710 • 8 SPIN VALVE SENSOR AI_2O_3 (AFM) 100Å PtMn

9/9 Hardayal S. GILL HIT1P049/HSJ9-2003-0205US1 (RF) - 730 - 702 - 719 - 732 1000 (AFM) 100Å PtMn AI_2O_3 -≥0.1µm 726 724 720 718 716 722 714 712 706 704 (SL3) 10Å Ru or Cu (SL2) 40Å NiFeCr (AP2) 18Å CoFe (AP1) 18Å CoFe (SP1) 5Å Al₂O₃ (FL3) 30Å NiFe (FL1) 15Å NiFe (FL2) 15Å NiFe S2 (SHIELD) (APC2) 8Å Ru (APC1) 8Å Ru S1 (SHIELD) CAP 30Å Ta (SL1) 30Å Ta ≥ AP PINNED LAYER STRUCTURE 721 FREE LAYER STRUCTURE 710 • 8 SPIN VALVE SENSOR (AFM) 100Å PtMn AI_2O_3 FIG. 10